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# INDUSTRIAL SUPREMACY

## AN ADDRESS

Delivered at the Annual Commencement of the Pennsylvania  
Museum and School of Industrial Art, in  
Horticultural Hall, Philadelphia,  
June 9, 1898

BY

Hon. ALBERT CLARKE

Secretary of the Home Market Club,  
of Boston



PHILADELPHIA  
PUBLISHED BY THE BOARD OF TRUSTEES

Gift.

Hon H. C. Lodge  
June 1806

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## THE SCHOOL OF INDUSTRIAL ART,

now in its twenty-second year, having buildings valued at about \$800,000 and equipment valued at more than \$200,000, comprises in its organization the following Departments:

- SCHOOL OF DRAWING.
- SCHOOL OF TEXTILE DESIGN AND MANUFACTURE.
- SCHOOL OF DECORATIVE PAINTING.
- SCHOOL OF CHEMISTRY AND DYEING.
- SCHOOL OF APPLIED DESIGN.
- SCHOOL OF CARVING AND WOOD-WORK.
- SCHOOL OF DECORATIVE SCULPTURE.
- SCHOOL OF ARCHITECTURAL DESIGN.
- SCHOOL OF INTERIOR DECORATION.
- SCHOOL OF ILLUSTRATION.
- SCHOOL OF NORMAL ART INSTRUCTION.
- SCHOOL OF MODERN LANGUAGES.

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- L. W. MILLER, Principal.
- HOWARD FREMONT STRATTON, Director of Art School.
- E. W. FRANCE, Director of Textile School.
- CHARLES E. DANA, Professor of Water-Color Painting.
- HERMAN DEIGENDESCH, Professor of Drawing.
- PAUL LACHENMEYER, Professor of Sculpture.
- FREDERIC HAIGH, Professor of Chemistry.
- BRADLEY C. ALGEO, Assistant Director of Textile School and Instructor in Textile Design and Mechanical Drawing.
- A. M. GRILLON, Director of School of Modern Languages and Instructor in French.
- A. M. SCHMIDT-GRILLON, Instructor in German.
- FLORENCE C. FETHERSTON, Instructor in Design Applied to Printed Fabrics.
- WILLIAM LAIRD TURNER, Instructor in Design Applied to Woven Fabrics.
- SAMUEL THOMPSON, Instructor in Carving and Wood-Work.
- WILLIAM ROEBUCK, Instructor in Weaving and Related Branches.
- JAMES P. JAMIESON, Instructor in Architectural Drawing and Design.
- HELEN A. FOX, Instructor in Instrumental Drawing and Historical Ornament.
- ELISABETH M. HALLOWELL, Instructor in Illustration.
- CHARLES N. BUTLER, C.E., Lecturer on Patent Laws.
- J. M. WOELFEL, Instructor in Dyeing.
- JOSEPH H. SHINN, JR., Instructor in Design Applied to Textiles.
- JOHN F. SCOTT, Instructor in Carding and Spinning.
- FRANCES LOUISE FARRAND, Instructor in Elementary Drawing and Design.
- FERDINAND LAZZARO MARENZANA, Instructor in Drawing.
- RAYMOND T. WALTERS, Instructor in Drawing.
- M. LOUISE VAN KIRK, Lecturer on Methods of Teaching and the Kindergarten.
- THOMAS B. RIDDINGTON, Engineer and Instructor in Steam and Metal Work.
- NORMAN E. WHITEHEAD, Assistant Engineer.
- EDWARD J. ROBERTS, Assistant Instructor in Hand-Loom Department.
- ALFRED BURHOUSE, Instructor in Dry Finishing.
- SAMUEL THOMPSON, JR., Superintendent of Building and Instructor in Wood-Work.
- LEONORA J. C. BOECK, Registrar.
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## INDUSTRIAL SUPREMACY.

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THE Colonial Dames of Philadelphia, who voted last month to rebuke the evident sympathy of the French for our Spanish enemies, by ceasing to buy French goods, struck a responsive chord of patriotism and suggested a lesson in education and economics which will not be wholly lost even upon those who disapprove a boycott. At first Paris affected derision and complacently said: "They will purchase our goods all the same; they will have to. They cannot obtain such artistic creations anywhere else." A little later, however, the shrinkage of French exports and the quiet of Parisian hotels caused representation to be made of the unwavering friendship of France for America and we were reminded of Lafayette and the *Bon Homme Richard*. Then spoke a Boston woman (see the evening *Transcript*, May 27, 1898) and said: "Do fashionable folk shop in Paris from philanthropic motives? No, they buy because they want the goods; it is a purely selfish matter. It is the thing to go abroad; the thing to wear imported gowns. Where would the patriotism be in refusing to trade there?"

Boston has not always talked in that way, and all of Boston does not talk so now. For be it remembered that in 1767 John Hancock, who was a merchant and ship owner, asked the people of Boston to sign an agreement that they would not purchase goods imported in foreign vessels. Then Paul Revere, who was a mechanic, said:

"Why purchase goods imported in any vessels, Mr. Hancock, when we can produce such goods ourselves?" So there was a town meeting on the subject and the result was an agreement in which all joined, tabooing a long list of foreign articles which was appended thereto.

Although relations between the colonies and the mother country had become somewhat strained, the motive of this boycott was not so much hostility or resentment as it was a desire to promote domestic manufactures. The founders of this nation saw most clearly that this object could not be accomplished without the co-operation of consumers. Patriotism must enter into business. It must become fashionable to buy domestic goods. Gradually home manufactures improved, but foreign goods had such prestige that government was obliged, and has been obliged ever since, to discriminate against them in its laws. Thomas Jefferson, who had drawn the Declaration of Independence, declared after his sojourn in France, that experience had taught him that industrial independence had become as essential to our happiness as political independence. It is said that both Jefferson and Madison refused to wear foreign fabrics. But they were only Presidents. They could not set the fashions. The fashions are set by people who are never followed in anything else, and would hardly be followed in that if their roofs were taken off.

Although it is true, as the Boston *Commercial Bulletin* has said, that the colonial habit of admiring "imported" goods belongs to a colony, not to an independent nation, it is also true that the fashionable world does not buy them because they are imported, but because they are attractive, and because, dating from colonial times, an opinion has prevailed that to be pretty they must be imported. We may inveigh against this as much as we please, but it is the beginning of wisdom to take facts as we find them. As a matter of fact, known to a few of our people, American manufactures in some lines, even of textiles, have long

been at such a high stage of perfection that they are excelled nowhere in the world. And yet, out of regard to the ignorance and prejudice of the *beau monde*, these goods are regularly sold under foreign brands. The agent of the Pacific Mills at Lawrence told me that for the last fourteen years they have run eighty looms upon one kind of goods, all of which were taken by a New York house on condition that they were to be put up in French style and tagged with a French label. There are probably hundreds of similar instances. Here and there a manufacturer, by persistent advertising and by long and patient waiting, causes his own trade mark to be regarded as highly as a European brand, and may his tribe increase; but most manufacturers sell to meet pay-rolls and pay dividends, hence if they comply with the requirements of their commission houses or wholesale customers, who are the first distributers, they feel that they have no further interest or duty. Thus the most inventive people on the face of the globe, with a fine eye also to beauty, has been altogether too submissive through the foibles of fashion and the commercial spirit, to the designs and interests of alien producers and too blind and indifferent to the artistic and industrial advancement of our own country.

While it is not probable that French goods are to be excluded from our markets, and while perhaps it is not desirable to go further in that direction than to put them on a basis of fair equality as to price with American goods, by imposing suitable duties and by patriotically preferring our own when they are equally good, yet there is food for thought in the volume of the importations. Last year we wore two million dollars' worth of French gloves and five million dollars' worth of French silks and drank four million dollars' worth of French wines, although we produce similar goods in large quantities and can readily supply every demand when we can suit every taste. If home industry were to have even no more than one half of this

business which now goes to France, it would employ people enough to make a small city and in some periods it would make all the difference between bad times and good times. When our needs are supplied by imports, we have only the goods; when they are supplied by home products, we have both the goods and the money. Without doubt it is the economic duty of a people possessing varied natural resources to be so far as possible self supplying. A thousand residents are worth more to a nation than ten thousand non-residents. And a country which is strong at home cannot fail to be strong abroad. These are truisms which appeal to the interest as well as to the patriotism of every true American.

But neither a patriotic purpose nor a protective tariff can or should content us with inferior domestic goods. One of the chief ends and triumphs of protection is to stimulate ambition, invention and high endeavor. It, more than any other one cause, has diversified our industries, planted factories in the midst of farms, created home markets for every kind of home products, given the people employment, opportunity and hope, more than doubled our population, more than quadrupled our wealth, and wonderfully enhanced our civilization during the generation that has followed the civil war. Nothing more, however, must be expected of protection than to afford the best opportunity. It does not take the place, and was never designed to take the place, of energy and skill. It only needs now to be supplemented by just such work as this Pennsylvania School of Industrial Art is doing. For not only have you hitched your chariot to a star, and harnessed the genius of fancy to the pinions of the loom, but you have begun to educate a much larger class than the students whom you graduate. You are teaching the American people that the best which can be done anywhere is done as well here. You have shown that the fine arts are no longer limited to canvas and marble, to brush and chisel, but have found

wings that carry them into multiform fabrics, making common-place things luminous with beauty, feasting the eyes and sating the longings of *connoisseurs*, cultivating and elevating the tastes of the plain people, and at length making it possible for American mechanical genius — already the wonder of the world — to adorn the person, spread the floor, hang the walls and decorate the table with beautiful creations that were once the exclusive possession of the rich and some of which were not even possible to the wearisome processes of hand-work. Madame de Stael called architecture frozen music. The lovely fabrics which you are teaching how to produce are caught fancies, glowing thoughts filling the meshes of a net, kaleidoscopic visions dancing in the sheen of things we wear, poetry singing all about us through the walks of daily life.

Entrancing as all this is from an artistic point of view, it is also intensely practical. It opens to us new realms of human endeavor; it is the *sine qua non* of our industrial supremacy. Why are the Baldwin Locomotive Works able to sell their machines in all countries in competition with the best that are produced at a lower labor cost in the country where the locomotive was invented? It is because they are never content with what has been achieved, but are continually going forward to improve every process and perfect every detail. During the last twenty years there has been an almost steady increase in our exports of manufactures and when we analyze the returns we find that it is only goods which excel those of other countries which thus find foreign markets in considerable quantities and at paying prices. Locomotives, farm machinery and implements, street cars and carriages, watches, builders' and saddlers' hardware, hemlock-tanned leather and refined mineral oils nearly exhaust the list, and the success of some of them is due to natural advantages.

The only textiles for which we have found much foreign demand have been plain and coarse cottons. The demand

has been chiefly in China and Japan. The English were ahead of us there, but as their goods, though attractive, were loaded with clay and ours were all honest cotton, we found a growing market. Before long, however, the Mongolians asked themselves why they should not manufacture their own cotton cloths. They had long been skilled in the more difficult art of ceramics and their Hindoo neighbors were large exporters of cotton cloths to England and America a century ago. Such skill had been developed that in 1786 Sir Charles Wilkins carried home to England a piece of cotton cloth made from a yarn so fine that 115 miles of a single thread weighed but a pound. So after Japan had opened her ports and taken on Western civilization for a few years, she began to build great cotton factories and to equip them with the best English and American machines. Her operatives proved to be tractable and patient and they soon became skilful. Women were glad to work twelve hours a day for from eight to twelve cents, and men for from fifteen to thirty cents. The companies which employed them were soon able to declare dividends of twenty to forty per cent. Nearly half a million women and minors were better employed than ever before and the cotton goods produced in 1896 were valued at \$37,083,757. Soon China began to build cotton factories and the number is yearly increasing. They have been successful from the first. This spring the governor of Hupeh has started one near Hankow, with 30,000 spindles and 1000 power looms. It is equipped with electric lights, automatic humidifiers and sprinklers, it employs 2000 persons, mostly minors, and the goods thus far sold yield a profit of 40 per cent. These Oriental beginnings are like the proverbial cloud "no bigger than a man's hand" which gives warning to navigators. They indicate that our principal foreign markets for cheap cottons will soon be lost. They indicate that even our domestic markets would soon be lost if they were not protected by a tariff.

Now the obvious lesson of these facts is that we must direct our endeavors more and more into channels of the highest and finest production. Slipshod methods will no longer serve. The trades unions have disapproved and done away with the old apprentice system and now the only way in which a person can learn the several processes of converting fibres into cloths, and chemicals into dyes, and weaves into the effects which charm the eye, is to take the full course of a school of design and textile fabrication. The day is near when mills will have no others but graduates of these schools for their superintendents and overseers, and next they will be preferred for agents and treasurers. "Now we know in part and we see in part," but then there will be those who can see every part face to face. Rev. William J. Tilley, in his admirable book on "Masters of the Situation" says that old Captain Fox used to say that in his opinion the midshipmen of the Naval Academy ought to begin as coal-heavers—at the very bottom of the ladder, and then work their way up. Every one knows that no line officer ever comes to the command of a ship "through the cabin window." As a midshipman he must "learn all the ropes" and make himself familiar with every detail concerning a man of war, and learn to manage her in weather fair or foul. Practiced skill is ever at a premium, and it commands appropriate recognition. Even the old tars pay it fitting deference. It was noticed during the naval operations of the civil war that the old sailors obeyed with alacrity the orders of even young officers fresh from the academy, while they were prone to question, if not to resent, those of the ablest volunteer officers placed in command. Moreover, there is the consciousness, which the trained officer has, of his own superior power. It was this knowledge and this consciousness which enabled Captain Clark to navigate the Oregon from San Francisco around Cape Horn, 13,000 miles, without delay or mishap, and which gave him courage to telegraph the government from

a South American port, "Please do not tangle me up with too many instructions; I am not afraid to meet the whole Spanish fleet." It was this thorough training which gave Admiral Dewey confidence to take his squadron into Manila bay and to silence the land batteries and sink the Spanish ships, thus "decorating the Spanish government," as Colonel William M. Olin has facetiously said, "with the unique distinction of having the largest submarine navy of any nation in the world." Forty years ago those two heroes were boys in the same Vermont village, where they never saw a vessel larger than a row-boat. What the Naval Academy did for them the Pennsylvania School of Industrial Art is now doing for some of the future great captains of industry, for young men and young women who are destined to load our argosies with the products of peace, to drive out of sight all the monstrosities of art that mar the homes and distort the lives of the common people, and to clothe the world with beauty.

Our Spanish foes, like some of the plantation aristocracy before the civil war, affect to despise the mechanical spirit. The result shows in their wretched gunnery and in their helplessness when certain hired Scotch and English engineers declined to serve them against America. The mechanical spirit is the genius of the age. When Eli Whitney introduced the principle of the duplication of parts, he revolutionized the arts of war and peace and multiplied the forces of nature that minister to the wants of man. The study of these forces and of their increasing adaptability, now more than ever before and more than anything else, distinguishes the progressive from the decaying nation. It opens up vast new possibilities. It has become one of the learned professions. It is the triumph of mind over matter. Thus Philadelphia, Pennsylvania, America, can see the supreme importance of such an institution of learning as this. The money devoted to its support, which ought to be unstinted, is certain to return the largest interest of any that the city or the state bestows. The day will come when its

founders will be regarded as the Benjamin Franklins and Stephen Girards of this generation.

Massachusetts, usually a leader, follows you in this, and emulates your example. Under state and local patronage, Lowell has within two years put into successful operation a textile school so large and well equipped that it lacks only a department of design to compare favorably with yours. With similar state aid New Bedford is now installing one. And for many years the institute of Technology at Boston and the Technological Institute at Worcester, together with departments of design in two of the art schools of Boston, have been turning out young men and women whose scientific attainments and cultivated tastes have made a marked impression upon certain New England fabrics. Some of them are now engrafting the ideal upon the practical by mastering the intricacies of textile machinery. This, if anything, will save to Massachusetts — handicapped by unfavorable natural conditions and by advanced labor laws, though the latter are said to be helpful by attracting the best operatives, — her vast cotton manufacturing industry, now rendered largely unprofitable and much of it imperilled by the increasing competition of the South. In recent years, as your President Search showed in great detail in his address before the Manufacturers' Club last September, the textile regions of Germany have been dotted all over with textile schools, none of them so complete as yours but most of them under state and municipal patronage and all of them contributing incalculably to the power of German enterprise in the commercial world. With such an enlightened and aggressive and ubiquitous rival in the field, it has become absolutely necessary for America to employ the same and better methods in order to gain our share of the world's markets or even hold industrial supremacy at home. Here again are your foresight and enterprise and patience more than justified ; and if every loom and spindle in the country were to contribute a small percentage of its product

to sustain and fill these halls of learning, the more business would come to it as a result. No matter how much is expended on special education, it will prove to be the smallest item in the cost of manufacture and it will yield the largest returns. Nothing else is so costly as ignorance ; and when ignorance gets into a design and that design gets into a machine, not even logarithms can compute the economic waste.

Ladies and gentlemen of the Graduating Classes, you and your predecessors are pioneers in a new American life. You have the rare opportunity of leading what I foresee will be a great procession. For some years you may be individually obscure — hidden in studios, unobserved in drafting rooms, immured in mills — but you will be working out the higher destiny of the highest branch of American industry. The thoughts of your intellects, schooled in technique and not cramped but rather expanded by it, will furnish employment for additional millions of capital and labor. You will win reputations for your employers' goods. You will become masters of art and captains of industry, and possibly some of you will lend your names to fame, to take places with those of Gobelin and Jacquard, Arkwright and Crompton, Whitney and Thimonnier. But let me advise you that you have only just begun to learn. You have mastered the principles of color, combination and design and you can take apart and put together numerous machines, and you know what they have thus far been made to do ; but there is no limit to the possibilities of discovery and effect. As an illustration of this, take the wonders of the Jacquard loom. For ninety-eight years its essential features have been retained but its capabilities have continually increased. And now it appears that Jan Szezenpanik, the youthful inventor of the telectroscope, has contrived to make the Jacquard reproduce in textiles photographs as well as drawn designs, and also to automatically puncture by electricity the metal plate that takes the place

of cardboard. This is expected to be one of the features of the Paris Exposition. Its utility can only be conjectured. In the hands of mere mechanics it is liable to carpet the earth with ill-chosen pictures ; in the hands of artist-weavers it may hang the walls of palaces with gobelins of nature's rarest scenes and adorn the cottages of peasants with reflections from the face of God.

Whatever may be discovered, you are trained to apply it with refined and cultivated sense. Many who have not enjoyed your advantages can become mere imitators and operatives ; be it your part to blend the fine arts and the mechanic arts as the soul and body are blended, making both increasingly useful, and delighting the world with new revelations of nature beaming through the works of man. Fashion soon ceases to patronize imitation. The difference between success and failure may sometimes lie in the closer or looser twisting of a cord or the variation of a shade, but the difference will give a new effect and make a fortune. The means are mechanical, but the motive must be an inventive and instructed taste. Such a taste alone can make the multiform combinations that give richness and refinement to the result. The imitator may discover a part of the means but he fails to produce the effect. Phillips Brooks related that a friend of his, who aspired to oratory, went with him to hear a great orator speak. And when they came away his friend inquired, "Did you see where his power lay?" "I felt," replied the great pulpit orator, "unable to analyze and epitomize in an instant such a complex result, and meekly I said "No, did you?" "Yes," he replied briskly, "I watched him, and it is in the double motion of his hand. When he wanted to solemnize and calm and subdue us, he turned the palm of his hand down ; when he wanted to elevate and inspire us he turned the palm of his hand up. That was it." And that was all the man had seen in an eloquent speech. He was no fool, but he was an imitator. He was looking for a single secret

for a multifarious effect. I suppose he has gone on from that day to this, turning his hand upside down and downside up, and wondering that nobody is either solemnized or inspired.

While your training has given you knowledge of intricate processes, it has warned and armed you against servile dependence upon them. They will be your servants and not your masters. Wagner, writing of his studies under Weinlig, said : "He dismissed me after having conducted me so far that I could solve the most difficult exercises in counterpoint with ease. 'That which you have gained through this dry study is called *independence*,' he said to me." And independence, it seems to me, is the crowning glory of all education and all industrial success. It stands upon what has been and reaches to what may be. Independence, which presupposes superior knowledge, is the first essential to the play of genius. Twice fortunate the city where stands the hall whence emanated that immortal Declaration that "these United Colonies are and of right ought to be free and independent States," and where, after the lapse of more than a century, has been reared a great institution which teaches the artistic and industrial independence without which political independence would sometime come to be of little worth.

The mastery which you have reached has not been attained without labor. Rest and change may come to you, but there cannot safely be a cessation of labor. Those departments of art and physics in which you revel contain never-ending incentives to research and progress. You are bound to be inspired with an undying ambition to evolve something, and like the Dying Alchemyst your prayer will be,

"Break for me but one seal that is unbroken!  
Speak for me but one word that is unspoken!"

Half educated men of native ability too often trust to the inspiration of occasion or to what they fancy is their genius ;

but your education must have led you to believe, with Edison, that "success is composed of two per cent of genius and ninety-eight per cent of industry," and that "inspiration is perspiration." When Senator Morrill asked Daniel Webster if those fine expressions in his orations, like that about the British drum beat and that about Liberty and Union were inspirations of the moment or the results of careful preparation, America's most majestic orator replied, "I am not one of those geniuses; I produce nothing without labor." How valuable is this lesson to all our youth, and especially to you, who will have occasional temptations to rest upon your laurels. We can never get beyond the old truth that where much is given much is required. America expects of you the conquest of her markets. She expects of you to make it "the thing" for fashion to cease to look to Paris to please æsthetic tastes, or, greater still, that while it may look in Paris it will buy at home. America expects you not only to absorb but to originate, and to achieve results that will command the plaudits and the patronage of the world. Philadelphia is the greatest center of our textile industries. It was in Philadelphia that Benjamin Franklin "brought down the lightning from the clouds and rendered it subservient to the will of man." May Philadelphia go on from conquering to conquer, until this noble institution of a new and useful learning shall be everywhere recognized as the brightest jewel in her crown of glory, gleaming like a searchlight upon every studio, mill and mart, ever breaking forth in new revelations of truth and beauty, and affording the highest security to our industrial supremacy.





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